

Remarks

The various parts of the Office Action (and other matters, if any) are discussed below under appropriate headings.

Interview

The undersigned would again like to thank Examiners Gakh and Ryan for the courtesies extended during an interview conducted on July 12, 2006. During the interview the rejections based on U.S. Patent No. 4,238,198 to Swaim et al. ("*Swaim*") and/or "Chromium Reducible Sulfur" by Sullivan et al. ("*Sullivan*") were discussed. The substance of the arguments presented appears below.

Based on the discussion of the claims vis-a-vis the applied art, the Examiners indicated they would agree to reconsider the case upon submission of amended claims that more specifically recite the structure of the portable apparatus for detecting hydrogen sulfide obtained from reduced inorganic sulfur for obtaining a measurement of the reduced inorganic sulfur content of a sample. Also, for clarification, the recitation of the trap was to be amended to specify a "trap for selectively removing hydrogen sulfide" from the exit gas stream.

Accordingly, claim 55 has been amended to recite further features of the portable apparatus. In particular, claim 55 has been amended further to specify that the controller controlling (a) operation of the detection means during analysis of the sample so as to measure hydrogen sulfide evolved on a real time basis as a function of time, and (b) calculation of the cumulative concentration of hydrogen sulfide as a function of hydrogen sulfide concentration and flow rate. Also, as noted above, the recitation of a trap has been amended to read "a trap for selectively removing hydrogen sulfide" from the exit gas stream.

The interview also included some discussion regarding the addition of the underlying chemistry to claim 55, even though the basic underlying chemistry described in the application was known in the art. Although claim 55 has not been thusly amended, it is noted that a number of dependent claims are specific to the underlying chemistry.

Regarding the other independent claim 67, it is noted that the structure of the apparatus already has been described in considerable detail. Accordingly, claim 67 was amended to specify measurement of hydrogen sulfide evolved on a real time basis as a function of time and also in respect of the recitation of a trap for selectively removing hydrogen sulfide from the exit gas stream.

Claim Rejections - 35 USC § 102 and § 103

Claims 3-5, 22, 24-30, and 32-54 have been rejected under 35 U.S.C. § 102(b) or § 103(a) as being unpatentable over *Swaim* and/or *Sullivan*. Reconsideration and withdrawal of the rejections are respectfully requested, particularly when taking into account the amendments to the claims and the following comments.

Claim 55 sets forth a portable apparatus for in-field and laboratory measurement of reduced inorganic sulfur content of a sample. As amended, the portable apparatus includes, *inter alia*, a controller for controlling operation of the apparatus, said controller controlling (a) operation of the detection means during analysis of the sample so as to measure hydrogen sulfide evolved on a real time basis as a function of time, and (b) calculation of the cumulative concentration of hydrogen sulfide as a function of hydrogen sulfide concentration and flow rate.

Claim 67 sets forth a portable apparatus for in-field and laboratory measurement of reduced inorganic sulfur content of a sample including, *inter alia*, a computer for controlling operation of the apparatus. As amended, the computer is operative to control a variety of functions including, upon initiation of an analysis by an operator, to transfer acid from the acid reservoir to the reaction chamber, to initiate operation of the heater, to initiate operation of the detector, to monitor a level of evolution of hydrogen sulfide from the reaction chamber, and to initiate supply of the inert or non-reactive gas to the reaction chamber, so as to measure hydrogen sulfide evolved on a real time basis as a function of time.

Claims 55 and 67 also recite a trap for selectively removing hydrogen sulfide from an exit gas stream leaving the apparatus.

Swaim does not disclose or suggest a controller or a trap as set forth in claims 55 and 67 and, therefore, it is respectfully submitted that claims 55 and 67 are neither

anticipated by nor obvious in view of *Swaim*. Indeed, it is believed that column 4, lines 17-21 of *Swaim*, in stating that the apparatus includes a gas flow meter or regulator, adjustable between flow rates of 1-10 standard cubic feet per hour, requires operator adjustment and therefore the purging gas used to purge the monochromator is controlled by an operator. Thus, the apparatus of *Swaim* does not include a controller for controlling operation of the apparatus, as set forth in either of claims 55 or 67.

In addition, no mention has been found in *Swaim* as to the inclusion of a trap for selectively removing hydrogen sulfide from an exit gas stream leaving the apparatus. Presumably, *Swaim's* apparatus must be used within the confines of a fume hood (as hydrogen sulfide gas is a toxic gas). Accordingly, unlike the apparatus of claims 55 and 67, the apparatus of *Swaim* is not suitable for in-field analysis. Further, in requiring generation of a plasma, *Swaim's* apparatus would not be a portable apparatus as set forth in claims 55 and 67. Moreover, the "purge chamber 10" and "vent 38" of *Swaim*, which were reference in the Office Action, do not provide for selective removal of hydrogen sulfide.

The apparatus as defined in claims 55 and 67 can provide one or more of the following advantages. It can be used to obtain measurements of reduced inorganic sulfur content in the field without requiring the use of highly trained or highly skilled technicians to obtain satisfactory measurements. The inclusion of the trap for selectively removing hydrogen sulfide from the exit gas stream permits trapping the hydrogen sulfide emitted during each analysis so that it can be separately analysed in a laboratory environment as a means of cross-checking the accuracy of the apparatus. The apparatus permits analysis of samples in the field rather than having to return the samples to a laboratory for analysis.

Sullivan does not overcome the deficiencies of *Swaim* vis-a-vis new claims 55 and 67. Simply stated, the present invention affords advantages not attainable by *Swaim* or *Sullivan*, nor any permissible combination thereof.

The dependent claims recite still further features of the invention, including certain aspects of the chemistry.

Other Amendments

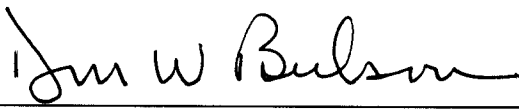
In addition to the above-discussed amendments made in view of the discussions with the Examiners during the interview in order to secure allowance of the claims, other amendments have been made. In particular, the use of "means plus function" language has been removed from the claims except for the reference to "detection means" inasmuch as the "detection means" is structurally defined to be device selected from the group consisting of a colourimetric detector, an electrochemical gas analyzer, a UV spectrometer and an IR spectrometer. The deletion of "means" from the claims also resolves antecedent basis issues. For instance, claims 58, 59 and 61 refer to a "controller" instead of "control means". These changes are not believed to impact the patentability of the claims for the reasons discussed during the interview.

Conclusion

In view of the foregoing, request is made for timely issuance of a notice of allowance.

Respectfully submitted,

RENNER, OTTO, BOISSELLE & SKLAR, LLP

By 
Don W. Bulson, Reg. No. 28,192

1621 Euclid Avenue
Nineteenth Floor
Cleveland, Ohio 44115
(216) 621-1113

M:\C\CULLIP\IP0161\IP0161US.R04.wpd